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Intellectual Property Administration  
P. O. Box 272400  
Fort Collins, Colorado 80527-2400

PATENT APPLICATION

ATTORNEY DOCKET NO. 10007856-1

**IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE**

Inventor(s): Kurt E. Spears

Confirmation No.: 2193

Application No.: 09/772714

Examiner: Gibbs, Heather D

Filing Date: Jan 30, 2001

Group Art Unit: 2622

Title: Optical Image Scanner With Illumination Compensation During Lamp Warmup (as Amended)

Mail Stop Amendment  
Commissioner For Patents  
PO Box 1450  
Alexandria, VA 22313-1450

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TRANSMITTAL LETTER FOR RESPONSE/AMENDMENT

JUL 08 2005

Sir:

Transmitted herewith is/are the following in the above-identified application:

<input type="checkbox"/> Response/Amendment	<input type="checkbox"/> Petition to extend time to respond
<input type="checkbox"/> New fee as calculated below	<input type="checkbox"/> Supplemental Declaration
<input type="checkbox"/> No additional fee	
<input checked="" type="checkbox"/> Other: Remarks re: Appeal Brief and Amended Appeal Brief (fee \$ _____)	

CLAIMS AS AMENDED BY OTHER THAN A SMALL ENTITY						
(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT	(3) NUMBER EXTRA	(4) HIGHEST NUMBER PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	(6) RATE	(7) ADDITIONAL FEES
TOTAL CLAIMS		MINUS		= 0	X \$50	\$ 0
INDEP. CLAIMS		MINUS		= 0	X \$200	\$ 0
[ ] FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM					+ \$360	\$ 0
EXTENSION FEE	1ST MONTH \$120.00	2ND MONTH \$450.00	3RD MONTH \$1020.00	4TH MONTH \$1690.00		\$ 0
OTHER FEES						\$ 0
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT						\$ 0

Charge \$ 0 to Deposit Account 08-2025. At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16, 1.17, 1.19, 1.20 and 1.21. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

Kurt E. Spears

By A. W. Winfield

Augustus W Winfield

Attorney/Agent for Applicant(s)  
Reg. No. 34,046

Date: July 8, 2005

Telephone No.: (970) 898-3142

PAGE 1/12 \* RCVD AT 7/8/2005 2:43:57 PM [Eastern Daylight Time] \* SVR:USPTO-EFXRF-1/5 \* DNIS:8729306 \* CSID:9708987247 \* DURATION (mm:ss):02:40

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PATENT APPLICATION

**HEWLETT-PACKARD COMPANY**  
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 P.O. Box 272400  
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 Fort Collins, Colorado 80527-2400

ATTORNEY DOCKET NO. 10007856-1

**IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE**

Inventor(s): Kurt E. Spears

Serial No.: 09/772,714

Examiner: Gibbs, Heather D.

Filing Date: 01/30/2001

Group Art Unit: 2622

Title: OPTICAL IMAGE SCANNER WITH COLOR AND INTENSITY COMPENSATION  
 DURING LAMP WARMUP

**COMMISSIONER FOR PATENTS**  
 P.O. Box 1450  
 Alexandria VA 22313-1450

**REMARKS IN CONJUNCTION WITH AMENDED BRIEF**

In the paper dated 07/01/2005, an amended brief was required in response to various items of non-compliance. An amended brief is attached.

The section entitled "INTRODUCTION" has been amended to remove the statement that the notice of appeal was filed concurrently with the brief.

In the section entitled "STATUS OF CLAIMS", a line has been added specifying that claims 1-15 have been canceled.

In the Notification of Non-Compliant Appeal Brief, box 5 is checked indicating that the brief does not contain a concise statement of each ground of rejection. Applicant disagrees and no amendments have been made. The brief contains a section entitled "GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL", which contains a concise statement of each ground of rejection. In addition, the checked box is inconsistent with the Detailed Action received from the examiner. In the Detailed Action, at page 3, item (6) states that Grounds of Rejection are included in the brief.

In the Notification of Non-Compliant Appeal Brief, box 6 is checked indicating that the brief does not present an argument under a separate heading for each ground of rejection on appeal. Applicant disagrees and no amendments have been made. There are two grounds of rejection, and there are two arguments under two separate headings for each of the two grounds of rejection.

In the Notification of Non-Compliant Appeal Brief, the continuation sheet states that applicant has not addressed argument of claim 20. In accordance with 37 CFR

41.37(c)(1)(vii), by grouping dependent claim 20 with independent claim 16, applicant is intentionally waiving any argument for the patentability of claim 20 separate from claim 16. No amendment has been made.

An Evidence Appendix has been added.

A Related Proceedings Appendix has been added.

Respectfully submitted,



Augustus W. Winfield

Reg. No. 34,046

July 8, 2005

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**HEWLETT-PACKARD COMPANY**  
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**PATENT APPLICATION**

**ATTORNEY DOCKET NO. 10007856-1**

**IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE**

**Inventor(s): Kurt E. Spears**

**Serial No.: 09/772,714**

**Examiner: Gibbs, Heather D.**

**Filing Date: 01/30/2001**

**Group Art Unit: 2622**

**Title: OPTICAL IMAGE SCANNER WITH COLOR AND INTENSITY COMPENSATION DURING  
LAMP WARMUP**

**COMMISSIONER FOR PATENTS**  
P.O. Box 1450  
Alexandria VA 22313-1450

**BRIEF ON APPEAL**

**INTRODUCTION**

Pursuant to the provisions of 37 CFR Part 41, Subpart B, applicants hereby appeal to the Board of Patent Appeals and Interferences (the "Board") from the examiner's final rejection dated 12/02/2004. A notice of appeal was timely filed on 03/25/2005, in accordance with 37 CFR § 41.31(a)(1).

**REAL PARTY IN INTEREST**

The entire interest in the present application has been assigned to Hewlett-Packard Development Company, L.P., as recorded at reel 014061, frame 0492.

**RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences.

## STATUS OF CLAIMS

Claims 1-15 are canceled.

Claims 16-21 are pending in the application.

Claims 16, 17, and 20 have been finally rejected.

Claims 18 and 19 are objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 21 is allowed.

Claims 16, 17, and 20 are on appeal.

## STATUS OF AMENDMENTS

There are no after-final amendments.

## SUMMARY OF CLAIMED SUBJECT MATTER

This invention relates generally to image scanners, and more specifically to compensation for changes in intensity and color during warm up of a lamp used for image scanning. A scanner has a calibration strip (figures 1, 2, 6, and 7, 116; figure 6, 600; figure 7, 702), preferably substantially the full width of the scanline (figure 2), that is visible to a photosensor array continuously during a scan (see, for example, page 6, line 7, through page 7, line 17). As a result, scanning can start as soon as the lamp provides sufficient light for scanning, without waiting for the lamp to stabilize. It is not necessary to keep the lamp on, or to keep the lamp warm. In addition, the system provides better scanning accuracy, by providing better compensation during a scan. Preferably, the separate array of photosensors used for monitoring illumination also monitors the color of the illumination along the calibration strip (figure 4, 412; page 8, lines 5-12; page 15, lines 2-12).

Claim 16 specifies initiating image scanning, as soon as sufficient illumination is available, without waiting for illumination to stabilize (page 6, lines 22-24); monitoring the intensity of the illumination, along substantially the entire length of a scanline, during scanning (figure 2; page 7, lines 9-11); and modifying an output of an imaging array, during scanning, in response to the intensity being monitored (figures 3, 4 and 5; for example, page 9, lines 9-22).

Claim 17, dependent on claim 16, further specifies monitoring the color of the illumination, along substantially the entire length of the scanline, during scanning (figure 4, 412; page 8, lines 5-12; page 15, lines 2-12).

Claim 20, dependent on claim 16, further specifies that each time the step of monitoring the intensity of illumination is performed, the step of measuring intensity values along a scanline is performed more than one time (page 12, line 24, through page 13, line 5)..

#### **GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

1. Whether claims 16 and 20 are unpatentable under 35 U.S.C. § 102(b) as anticipated by U.S. Patent Number 5,153,745 (Brandkamp *et al.*).
2. Whether claim 17 is unpatentable under 35 U.S.C. § 103(a) over Brandkamp *et al.* in view of U.S. Patent Number 6,054,707 (Hou).

#### **ARGUMENT**

##### **CLAIMS 16 AND 20**

Claim 16 specifies monitoring the intensity of the illumination, along substantially the entire length of a scanline, during scanning. Brandkamp *et al.* do not teach or suggest monitoring the intensity of the illumination, along substantially the length of the scanline, during scanning.

In Brandkamp *et al.*, there is a full-length calibration strip (figure 3, 84) which is used before scanning (see column 5, lines 15-24). During scanning, lamp output is detected by a patch (not illustrated) on the moving assembly 23, outside of the active imaging scan area. Column 4, lines 7-13 are as follows (emphasis added):

A gain adjustment is applied to the overall output analog signal level from array 24 and AGC circuit 32 and sent to processor 34. This gain is updated on a scan line by scan line basis based on sensed changes in the overall lamp output as detected on an AGC patch which is mounted on assembly 23 outside of the active imaging scan area.

Brandkamp *et al.* do not teach or suggest that the patch is substantially the length of the scanline. The examiner cites column 4, lines 7-13, stating that "the processor 34 sensed by changes in the lamp performs monitoring of the intensity." This does not describe all the limitations of claim 16. Applicant agrees that in figure 2, signals from CCD array 24 go through AGC 32 before being received by processor 34. However, claim 16 specifies that lamp intensity (not image data), is monitored during scanning, along substantially the entire length of the scanline. A patch outside the active imaging scan area does not anticipate monitoring lamp intensity along substantially the entire length of the scanline. In addition, if illumination is monitored using a patch outside of the active imaging area, sensors, other than the sensor array used for the active imaging scan area, are needed to monitor the illumination. Brandkamp *et al.* do not teach or suggest a sensor array for monitoring the illumination along substantially the length of the scanline during scanning.

### **CLAIM 17**

Claim 17 is as follows:

The method of claim 16, further comprising:

monitoring the color of the illumination, along substantially the entire length of the scanline, during scanning.

The examiner stipulates that Brandkamp *et al.* does not disclose monitoring the color of illumination, along substantially the entire length of the scanline, during scanning.

The examiner cites Hou, column 6, lines 48-67 and figure 5B as disclosing "color illumination steps performed along the scanline while scanning." The cited text describes an illumination source, providing colored light, as a back illumination for scanning transparent documents. See also, figure 3, in which light source 306 illuminates document 316 from the back, and figure 4B, in which light source 404 illuminates document 316 from the back. Claim 17 specifies monitoring the color of the illumination during scanning. In Hou, the intensity and color of the illumination is modified by the transparent document being scanned before the light is received by the photosensors. Accordingly, Hou does not teach or suggest monitoring the color of the illumination.

### CONCLUSION

In view of the above, applicant respectfully requests that the examiner's rejection of claims 16, 17, and 20 be reversed.

Respectfully submitted,

A. W. Winfield

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July 8, 2005

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**CLAIMS APPENDIX****PENDING CLAIMS**

16. A method of compensation for illumination variation in an image scanner, comprising:
  - initiating image scanning, as soon as sufficient illumination is available, without waiting for illumination to stabilize;
  - monitoring the intensity of the illumination, along substantially the entire length of a scanline, during scanning; and
  - modifying an output of an imaging array, during scanning, in response to the intensity being monitored.
17. The method of claim 16, further comprising:
  - monitoring the color of the illumination, along substantially the entire length of the scanline, during scanning.
18. The method of claim 16, further comprising:
  - measuring, an initial intensity of the lamp, at a position corresponding to a particular pixel on a scanline;
  - measuring, at time T, an intensity of the lamp, at the position corresponding to the particular pixel on the scanline, during scanning;
  - measuring, at time T, the intensity at the particular pixel on the scanline;
  - correcting the intensity of the particular pixel for thermal noise; and
  - multiplying the corrected intensity of the particular pixel times the initial intensity of the lamp divided by the intensity of the lamp at time T.
19. The method of claim 18, further comprising:
  - correcting the measurement of the initial intensity of the lamp for thermal noise; and
  - correcting the measurement of the intensity of the lamp at time T for thermal noise.

20. The method of claim 16, wherein each time the step of monitoring the intensity of illumination is performed, the following step is performed more than one time:  
measuring intensity values along a scanline.

21. A method of compensation for illumination variation in an image scanner, comprising:  
initiating image scanning, as soon as sufficient illumination is available, without waiting for illumination to stabilize;  
measuring the intensity of the illumination, a first time, along substantially the entire length of a scanline, during scanning;  
storing outputs of an imaging array for multiple scanlines;  
measuring the intensity of illumination, a second time, along substantially the entire length of a scanline, during scanning;  
computing interpolated intensity values between the first and second measurements of the intensity of illumination; and  
using the interpolated intensity values to modify the stored outputs of the imaging array.

**EVIDENCE APPENDIX**

**Does not apply.**

**RELATED PROCEEDINGS APPENDIX**

**None**